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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/625,201	07/21/2000	Natividadel Lobo	367.38796X00	5615

7590 06/28/2005

Carl I Brundidge
Antonelli Terry Stout & Kraus LLP
Suite 1800
1300 North Seventeenth Street
Arlington, VA 22209

EXAMINER	
BURD, KEVIN MICHAEL	
ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/625,201	LOBO, NATIVIDADEL	
	Examiner	Art Unit	
	Kevin M. Burd	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. This office action, in response to the remarks filed 3/31/2005, is a final office action.

Response to Arguments

2. Applicant's arguments filed 3/31/2005 regarding claims 1-27 have been fully considered but they are not persuasive. Additional information regarding claims 1 and 10 are provided in the rejections of the claims stated below.

3. Applicant's arguments, see the remarks on pages 12 and 13 of the response filed 3/31/2005, with respect to the rejections of claims 28-33 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, new grounds of rejection are made in view of Miya et al (US 5,572,516).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 24-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

A single means claim, i.e., where a means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph. In re Hyatt, 708 F.2d 712, 714-715, 218 USPQ 195, 197 (Fed. Cir. 1983) (A single means claim which covered every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification disclosed at most only those means known to the inventor.). When claims depend on a recited property, a fact situation comparable to Hyatt is possible, where the claim covers every conceivable structure (means) for achieving the stated property (result) while the specification discloses at most only those known to the inventor.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-5 and 8-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Jeckeln et al (US 6,072,364).

Regarding claim 1, Jeckeln discloses a method of defining a relationship between frequency and amplitude of a pulse function for acting on a data stream as shown in figure 1. The pulse-shaping filter 16 shapes a pulse stream and pre-distorter 2 then distorts the output of the filter. The pre-distortion is determined from "cost parameters" or distortions created prior to the transmitting of the signal after amplification in power amplifier 13 of figure 1. Examples of this distortion are amplitude and phase distortions generated when digital modulation is used (column 5, lines 19-23). Therefore, the amplitude and phase will be defined over some range to allow for compensate of distortions. Jeckeln discloses a cost function is defined that represents the deviation created by the power amplifier from a desired level. The cost function will provide predistortion to compensate for the distortion created by the power amplifier 13 so the transmitted signal will be transmitted free from distortions created by the transmitter components. The cost function is created by using the feed back signal from the power amplifier 13, the RTM 12 and the predistorter 2 as shown in figure 1. This cost function is fixed. Jeckeln also defines the amplitude of the pulse function that is to be output from the predistorter 2. This is shown in figure 4. The amplitude and phase signals are input to the predistorter as is the output of the pulse-shaping filter 16. The phase and amplitude of the pulse shaping filtered signal is changed according to the feed back signal and the cost function of the predistorter 2.

Regarding claim 2, the power amplifier become non-linear at saturation (column 5, lines 19-23).

Regarding claims 3-5, 8 and 9, different distortions will occur in the transmitter such as distortion form the A/D and from the power amplifier and each will be weighted depending on their individual impact on the signal.

Regarding claims 10-12 and 19-24, Jeckeln discloses a method of defining a relationship between frequency and amplitude of a pulse function for acting on a data stream as shown in figure 1. The pulse-shaping filter 16 shapes a pulse stream and pre-distorter 2 then distorts the output of the filter. The pre-distortion is determined from "cost parameters" or distortions created prior to the transmitting of the signal after amplification in power amplifier 13 of figure 1. Examples of this distortion are amplitude and phase distortions generated when digital modulation is used (column 5, lines 19-23). Therefore, the amplitude and phase will be defined over some range to allow for compensate of distortions. Different distortions will occur in the transmitter such as distortion form the A/D and from the power amplifier and each will be weighted depending on their individual impact on the signal. Jeckeln discloses a cost function is defined that represents the deviation created by the power amplifier from a desired level. The cost function will provide predistortion to compensate for the distortion created by the power amplifier 13 so the transmitted signal will be transmitted free from distortions created by the transmitter components. The cost function is created by using the feed back signal from the power amplifier 13, the RTM 12 and the predistorter 2 as shown in figure 1. This cost function is fixed. Jeckeln also defines the amplitude of the pulse function that is to be output from the predistorter 2. This is shown in figure 4. The amplitude and phase signals are input to the predistorter as is the output of the pulse-

shaping filter 16. The phase and amplitude of the pulse shaping filtered signal is changed according to the feed back signal and the cost function of the predistorter 2. The means for shaping a data stream is show in figure 1 as well.

Regarding claim 13, Jeckeln discloses the distortions may degrade the BER performance in the modulation scheme (column 5, lines 23-27).

Regarding claims 14-18, 26 and 27, Jeckeln discloses the communication system is an RF communication system.

Regarding claim 25, the pulses are shaped in the pulse-shaping filter 16 and further shaped by the pre-distorter 2 using look up tables 3 and 4 (column 4, lines 61-65).

6. Claims 29-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Miya et al (U 5,572,516).

Regarding claim 29, Miya discloses a dual mode communication device operable in a first mode (TDMA) when a first set of cost parameters are desired and a second mode (CDMA) when a second set of cost parameters are desired (column 4, line 60 to column 5, line 20). The mode detection circuit 131 and the control circuit 130 determine which mode to transmit in and, therefore, which set of cost parameters is desired (column 5, lines 21-49). An input data stream is input through elements 104 and 105 in the first mode (TDMA) (column 4, lines 60-63). These elements shape the data (pulses) according to a TDMA mode. Alternatively, the input data stream is input through elements 106, 107 and 108 in the second mode (CDMA) (column 4, lines 60-63). These

elements shape the data (pulses) according to a CDMA mode. The mode detection circuit 131 and the control circuit 130 determine in which mode to transmit the information. The data can be shaped using any method and executed in the components of figure 1.

Regarding claim 30, each of the modes (TDMA and CDMA) will transmit data at a data rate.

Regarding claim 31, each of the modes (TDMA and CDMA) will transmit data. The data can be voice or data.

Regarding claim 32, Miya discloses a dual mode communication device operable in a first mode (TDMA) when a first set of cost parameters are desired and a second mode (CDMA) when a second set of cost parameters are desired (column 4, line 60 to column 5, line 20). The mode detection circuit 131 and the control circuit 130 determine which mode to transmit in and, therefore, which set of cost parameters is desired (column 5, lines 21-49). An input data stream is input through elements 104 and 105 in the first mode (TDMA) (column 4, lines 60-63). These elements shape the data (pulses) according to a TDMA mode. Alternatively, the input data stream is input through elements 106, 107 and 108 in the second mode (CDMA) (column 4, lines 60-63). These elements shape the data (pulses) according to a CDMA mode. The mode detection circuit 131 and the control circuit 130 determine in which mode to transmit the information. The signal will be modulated and transmitted via antenna 132.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeckeln et al (US 6,072,364) in view of Summers (US 5,070,254).

Regarding claims 6 and 7, Jeckeln discloses a method of defining a relationship between frequency and amplitude of a pulse function for acting on a data stream as stated above in paragraph 5. Jeckeln does not disclose compensating for a reconstruction filter. Reconstructive filters are useful for shaping filters to correct a pulse signal. Pulses encounter interference that can cause pulse shape and resolution to be degraded. However, the use of these filters can cause distortion in the signal as well. Summers discloses, it is well known to use pre-distortion to compensate for the distortion produced in a reconstruction filter (column 4, lines 40-42). It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the teachings of Summers to use a reconstruction filter and to then compensate for the distortion caused by said filter in the system and method of Jeckeln for the reasons stated above.

8. Claims 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miya et al (US 5,572,516) in view of Jeckeln et al (US 6,072,364).

Regarding claim 28, Miya discloses a dual mode communication device operable in a first mode (TDMA) when a first set of cost parameters are desired and a second mode (CDMA) when a second set of cost parameters are desired (column 4, line 60 to column 5, line 20). The mode detection circuit 131 and the control circuit 130 determine which mode to transmit in and, therefore, which set of cost parameters is desired (column 5, lines 21-49). An input data stream is input through elements 104 and 105 in the first mode (TDMA) (column 4, lines 60-63). These elements shape the data (pulses) according to a TDMA mode. Alternatively, the input data stream is input through elements 106, 107 and 108 in the second mode (CDMA) (column 4, lines 60-63). These elements shape the data (pulses) according to a CDMA mode. The mode detection circuit 131 and the control circuit 130 determine in which mode to transmit the information. Miya does not disclose the pulse function generators are responsive to distortion by a component of the transmitter. Jeckeln discloses compensating for distortion caused by a power amplifier as shown in figure 1. It would have been obvious for one of ordinary skill in the art at the time of the invention to utilize the predistortion circuitry of Jeckeln in the communication system of Miya to remove the interference caused by components of a transmitter. By removing this interference, the transmitted signal will be received at a receiver free from the errors caused by these interfering elements.

Regarding claim 33, Miya discloses a dual mode communication device operable in a first mode (TDMA) when a first set of cost parameters are desired and a second mode (CDMA) when a second set of cost parameters are desired (column 4, line 60 to

column 5, line 20). The mode detection circuit 131 and the control circuit 130 determine which mode to transmit in and, therefore, which set of cost parameters is desired (column 5, lines 21-49). An input data stream is input through elements 104 and 105 in the first mode (TDMA) (column 4, lines 60-63). These elements shape the data (pulses) according to a TDMA mode. Alternatively, the input data stream is input through elements 106, 107 and 108 in the second mode (CDMA) (column 4, lines 60-63). These elements shape the data (pulses) according to a CDMA mode. The mode detection circuit 131 and the control circuit 130 determine in which mode to transmit the information. Miya does not disclose the method of adjusting the phase and amplitude of a pulse function as stated in claim 1. Jeckeln discloses a method of defining a relationship between frequency and amplitude of a pulse function for acting on a data stream as shown in figure 1. The pulse-shaping filter 16 shapes a pulse stream and pre-distorter 2 then distorts the output of the filter. The pre-distortion is determined from "cost parameters" or distortions created prior to the transmitting of the signal after amplification in power amplifier 13 of figure 1. Examples of this distortion are amplitude and phase distortions generated when digital modulation is used (column 5, lines 19-23). Therefore, the amplitude and phase will be defined over some range to allow for compensate of distortions. Jeckeln discloses a cost function is defined that represents the deviation created by the power amplifier from a desired level. The cost function will provide predistortion to compensate for the distortion created by the power amplifier 13 so the transmitted signal will be transmitted free from distortions created by the transmitter components. The cost function is created by using the feed back signal from

the power amplifier 13, the RTM 12 and the predistorter 2 as shown in figure 1. This cost function is fixed. Jeckeln also defines the amplitude of the pulse function that is to be output from the predistorter 2. This is shown in figure 4. The amplitude and phase signals are input to the predistorter as is the output of the pulse-shaping filter 16. The phase and amplitude of the pulse shaping filtered signal is changed according to the feed back signal and the cost function of the predistorter 2. It would have been obvious for one of ordinary skill in the art at the time of the invention to utilize the predistortion circuitry of Jeckeln in the communication system of Miya to remove the interference caused by components of a transmitter. By removing this interference, the transmitted signal will be received at a receiver free from the errors caused by these interfering elements.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Stern et al (US 5,712,868) discloses a dual mode communication network that switches between a TDMA mode and a CDMA mode (column 6, lines 4-16).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Thursday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin M. Burd
6/26/2005

KEVIN BURD
PRIMARY EXAMINER